

JPRS 79791

5 January 1982

East Europe Report

SCIENTIFIC AFFAIRS

No. 726

FBIS

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REPORT DOCUMENTATION PAGE		1. REPORT NO. JPRS 79791	2.	3. Recipient's Accession No.																		
4. Title and Subtitle EAST EUROPE REPORT: SCIENTIFIC AFFAIRS, No. 726			5. Report Date 5 January 1982																			
7. Author(s)			6.																			
9. Performing Organization Name and Address Joint Publications Research Service 1000 North Glebe Road Arlington, Virginia 22201			8. Performing Organization Rept. No.																			
12. Sponsoring Organization Name and Address As above			10. Project/Task/Work Unit No.																			
			11. Contract(C) or Grant(G) No. (C) (G)																			
			13. Type of Report & Period Covered																			
			14.																			
15. Supplementary Notes																						
16. Abstract (Limit 200 words) This serial report contains press and radio coverage on the development of and progress in the various theoretical and applied scientific disciplines and technical fields; and the administration, structure, personnel, and research plans of leading East European scientific organizations and institutions, particularly the academies of sciences.																						
17. Document Analysis a. Descriptors																						
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b. Identifiers/Open-Ended Terms																						
c. COSATI Field/Group 5B																						
18. Availability Statement: Unlimited Availability Sold by NTIS Springfield, Virginia 22161		19. Security Class (This Report) UNCLASSIFIED	21. No. of Pages 49																			
		20. Security Class (This Page) UNCLASSIFIED	22. Price																			

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EAST EUROPE REPORT SCIENTIFIC AFFAIRS

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POLISH-SOVIET AIR RADAR GEOLOGICAL SURVEY CONDUCTED

Warsaw SKRZYDLATA POLSKA in Polish No 43, 25 Oct 81 p 3

[Article by Pawel Elsztein]

[Text] By now we are capable of defining the structure of distant planets in our solar system. Among others, radar has thoroughly explored the moon from the earth's surface as well as from the lunar orbit, and special maps have been produced. No wonder that experience gained in space techniques have been transferred to the Planet Earth. Thus, in addition to taking pictures of the earth's surface by using various passive systems more often active observations are applied such as the use of 0.5 cm to 10 m long radiowaves of electromagnetic radiation reflection emitted from a spacecraft or aircraft. Advantages of radar are obvious: its waves penetrate cloud covers and fog. They can be used by day or by night. In some cases they can also penetrate vegetation and certain weathered rock. The image obtained by radar presents a "clean" earth's surface, without deformations caused by the above mentioned obstructions. It renders perfectly the sculpture of the earth's surface.

We have been well informed about the newest technical progress, however only 2 years ago a decision was taken at the suggestion of the President of the Central Geological Office to start tests on Polish territory. There was the question of laying out radar images of three selected areas of 300 to 400 square kilometers. Such images would help initial geological discoveries. Since in Poland we do not have necessary equipment nor "radar" specialists, we have contacted a Soviet establishment which informed us that the making of such three separate images would be costly. Therefore, the decision was made to make radar images of nearly one-half of the Poland's territory, using an An-24 plane. Radar waves covered an area of nearly 120 thousand square kilometers of southern Poland. Some 8 to 15 thousand square kilometers were scanned per day. The southern regions were selected because the bed-rock there is relatively shallow.

The An-24 Soviet aircraft was equipped with the Soviet TOROS radar equipment, which is used by the surveying enterprise and is one of the many of this kind existing in the USSR. The resulting large series of radar images gave us a basis for geological interpretation. Much information has been obtained from the region of Swietokrzyskie Mountains, Sudetes and Carpathians. Assistant Professor Dr Joseph Bazynski, manager of the Air and Satellite Photographic Interpretation Center of the Geological Institute supplied information on the radar map of that part of Poland which was produced in this Center.

The aim of Polish specialists was to gain a full documentation of Poland "from bird's eye view" by using black and white photos and multi-spectral as well as radar images. Surveys can be made only under good weather conditions, otherwise an air group would have to spend much time for such kind of work and the cost would be high. Therefore the radar method had to be used exclusively. A question is raised how high were the expenditures for radar pictures of the one half of Poland. According to information obtained, the cost of the whole undertaking, including the making of pictures as well as of their laboratory processing, provisions for the operating personnel, etc, worked out to less than the cost of one single deep geological drilling!

Evidently, radar images do not give an immediate reply that here or there crude oil will be found, and that there are new deposits of copper or gold. The radar method gives intermediate information. It is one of the many methods used by geologists. Selected images of the Swietokrzyskie Mountains and Sudetes have been submitted to special measures, such as electromagnetic wave detection from various elevations and four directions of approach. Such method secured one hundred percent of the obtainable information. (Pictures from one direction provide up to 70 percent of information). These pictures have been interpreted by geologists and, on this basis, a map was prepared on a scale of 1:200 thousand, on which all geological information has been entered. Practically, it is a topographical map with overprinted data.

Work on the map was finished this year. A good recognition of the investigated area has been obtained. For example, an interesting configuration of rock was detected in the Sudetes. Results of investigation are used in serial production of geological maps. It is hard to go deeply into details accessible to specialists, but one is certain, that radar technology together with the airplane broadened our knowledge on the geological structure of our country. Moreover, next to the USSR, we are the first CEMA country to carry out radar detection on such a large area. The radar map was realized due to the efforts of an ambitious team headed by MS Michal Wilczynski and his coworkers, which included: MS Stanislaw Doktor, MS Marek Graniczny and MS Adam Sieradz. To be added is the name of Vladiliy Starostin, consultant from USSR, whose cordiality and helpfulness to our needs was highly appreciated in Poland.

Radar maps have been distributed to geologists. Only they will appreciate the usefulness in testing in terrain the information contained in those maps. The first evaluation of maps by teams from Krakow and Wroclaw is favorable. We would be happy if satellite pictures and radar images could enable us to reach all the riches in which, according to geologists, our Polish land abounds.

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CSO: 2602

INTERNATIONAL AFFAIRS

BRIEFS

HUNGARIAN-SOVIET COMPUTER CONTACT ESTABLISHED--Permanent computer contact between the Hungarian Academy of Sciences and the Leningrad computer center of the Soviet Academy of Sciences was established on Thursday by Hungarian and Soviet specialists. For years there has been successful collaboration in developing and establishing computer networks between the various institutions of the Soviet Academy of Sciences and the Computer Technology and Automation Research Institute of the Hungarian Academy of Sciences. This collaboration is part of the joint work performed in the interest of establishing an international computer network between the scientific academies of the socialist countries. The fact that a permanent connection via rented telephone line was established between the Budapest and Leningrad computer centers is an important milestone in this collaboration. Among other things, this will make possible exchange and joint development of research findings, information and programs. It will also permit computer assisted tele-editing of the joint periodical of the two academies and use of the computerized graphics system which aids engineering planning. The ultimate goal of the collaboration is establishment of international computer networks which will raise the level of scientific cooperation and exchange of information to new, far higher levels than were possible previously. [Text] [Budapest NEPSZABADSAG in Hungarian 4 Dec 81 p 5 WA]

CSO: 2502/31

WORK OF PHARMACEUTICAL CONTROL LABORATORY DISCUSSED

Tirana ZERI I POPULLIT in Albanian 18 Nov 81 p 3

[Article by Idajet Zotaj, director of the Laboratory for the State Control of Pharmaceuticals in Tirana: "An Important Center for the Protection of the Health of the People"]

[Text] Little is known about the Laboratory for the State Control of Pharmaceuticals but, as an institution specializing in the control and analysis of pharmaceuticals, it carries out an important function. Today it has been transformed into an important research center in the field of analysis of pharmaceutical products.

One of the main duties of the scientific research in our laboratory is the elaboration of methods for the qualitative and quantitative analysis of medicinal products through the use of chemical, physical-chemical, microbiological and biological methods. In light of the fact that, mainly, imported pharmaceuticals, raw materials and prepared products are analyzed, great efforts are made to assimilate and utilize the latest methods which are being used in the world today.

Since the pharmacists who graduate from our faculty are generalists, all advanced cadres who begin work in the control laboratory undergo a period of specialization in the laboratory or in other institutes, for 1 or 2 years, depending on the area of specialization. For example, the period of specialization in chemical analyses in this laboratory last a year. For analyses of medicinal crops, the specialization lasts 2 years, including 1 year in the department of botany. Also, the period of specialization in biological and microbiological analyses, which takes place in the Institute of Hygiene and Epidemiology and in the laboratory, lasts 2 years. Special attention is given to the training of intermediate cadres.

The scientific studies in the laboratory are concentrated on the study of the qualities of domestic raw materials for pharmaceutical use. There has been research on the active material content of our crops and there has been cooperation on several themes with the department of botany of the Faculty of Natural Sciences, with the Institute of Military Medicine Studies and with the department of pharmacy of the Faculty of Medicine. Nevertheless, the lack of a coordinating center for the study of crops is felt. Much has been said and written about this matter but so far no solution has been found.

For several years the Laboratory for the State Control of Pharmaceuticals has studied the quality of some chemical products of our industry, some of which, upon

its recommendations, have been removed from the import list. A success of our chemical industry was the production of nitrogen protoxide for anesthesia; it has been used in our operating rooms. Workers in the laboratory have made a contribution to the production of this gas, participating in the preparation and implementation of technical conditions for analysis. However, we think it is necessary to set up a joint working group of chemists and pharmacists to study more thoroughly the health requirements of articles which might be produced.

In cooperation with the rubber factory in Durres and the glass factory in Kavaje, research is being conducted and quality standards are being drawn up for the rubber and glass for pharmaceutical packaging which will be used in the antibiotic factory and for laboratory vessels.

Another matter studied by the laboratory was the period of potency of medicines. In the last 5-year plan, special attention was given to the stabilization of medicinal preparations and materials. The solution of this problem is also of great economic importance because millions of leks are saved by the proper determination of the period of effectiveness of the substance and by the extension of the period of potency and the time during which the drug can be used.

At the same time, the laboratory gives technical assistance and direction to the work of nine laboratories for pharmaceutical analyses in the districts. All cadres assigned to work in these laboratories have had a period of specialization in the Laboratory for the State Control of Pharmaceuticals. In our institution cadres from sectors outside the health sphere have also had training in some new methods of analysis. These cadres come from sectors in which these methods are used such as industry, toxology and others.

We have given special attention to scientific information. Pharmaceutical reviews with the latest scientific news from various countries of the world are received in our institution each month. Also, the filing of all articles dealing with these subjects has enabled us to introduce new elements in science into our everyday analyses and to improve their quality.

The continuation of research for the improvement of existing methods and the perfecting of new methods of analysis are duties which we have set for ourselves in the future.

CSO: 2102/2

ALBANIA

BROADER COOPERATION SEEN NECESSARY FOR ACHIEVEMENT OF SCIENTIFIC GOALS

Tirana BASHKIMI in Albanian 20 Nov 81 p 2

[Article by Ajet Ylli, secretary of the Committee for Science and Technology: "The Technical Sciences Are Confronted with Great Tasks"]

[Excerpts] The tasks facing the technical sciences are stated in the five-year plan for scientific research work which is a component part of the overall plan for the economic and cultural development of our country.

Important studies are planned in the area of ore prospecting and extracting and in the area of the improvement of the technology of the production and processing of ores in the country. The aim of these studies is to find the best way to utilize completely all the useful components of raw materials, at the lowest cost and with the best quality products. The increase in production during the 7th five-year plan will be 56-58 percent higher than during the past five-year plan. This increase is predicted on the basis of studies which will be made to find the most profitable ways to introduce and disseminate additional methods for raising the coefficient of extraction of petroleum from existing sources. Also, studies and designs will continue to be prepared in regard to the extraction and enrichment of solid ores. Special importance will be given to the enrichment of chrome ores with the aim that 50 percent of the chrome ore will be enriched by the end of the five-year plan. Studies associated with the discovery of methods to enrich poor ores, which are currently not being utilized, will receive special attention. The studies and experiments which will be carried out in the machine sector will be geared to the improvement of the mechanization of the work processes and the production of the most varied types of equipment for complete industrial lines and projects.

The achievement of these objectives requires that all responsible organs, both at the grassroots and at headquarters, give greater attention to the guidance and organization of scientific research work.

First of all, we must work so that the most talented specialists and scientists work in all organism, from the technological bureaus to the various scientific institutions; these should be people who have given evidence of their theoretical assimilation of the contemporary achievements of science and their practical application.

In order to improve the quality of the studies and designs it is important that great effort be made to ensure continuity in the research and design work of the specialists. The best form of training is to study and design projects together with and under the direction of comrades who have experience. Therefore, it is necessary for the best specialists in work groups who have been skillful in solving problems to be assigned to other groups and not, as has happened in some cases, be dispersed without being given any other tasks.

The advanced professional training of high level specialists will continue in a more organized manner in this five-year plan and this will help to raise the level of studies. Short term training, lasting 2-3 months, has begun in all central departments, in accordance with the plan. Also, long term post-graduate training, lasting 2-3 years, is in the planning stages and it has begun to resemble a regular educational process. However, this activity is not progressing well everywhere. The matter of 2-3 month training is not given the proper attention by some central departments, by their cadre directorates and the work is limping along in those departments where it has been begun and in many other departments it has not been begun yet.

Many themes planned for enterprises, executive committees and ministries and for the nomenclature of the Council of Ministers cannot be studied solely with the forces of the enterprise, district or ministry. They have been planned for broader cooperation. For this reason, from the very beginning of the scheduling process, it is important to parcel out the tasks and to ensure that each party takes responsibility for the part which is assigned to it. The investigations made during recent months by the Committee for Science and Technology show that in regard to a number of subjects on the nomenclature of the Council of Ministers this collaboration has not been accurately stated, especially in regard to some topics belonging to ministries which collaborate with the Academy of Sciences and Tirana University.

Greater attention should be shown for the further perfection of the method of completing all phases of studies. Research, design and execution work should be a continuous process and no interruptions should be permitted. Special importance should be given to the design phase which is a transition from general study to concrete realization. In particular, accurate design work in the fields of machine building and technology should overcome its relative backwardness in comparison with design work in the field of constructions, in general and hydro-electric power plant construction, in particular. From the beginning stages, our studies should be accompanied by economic and financial studies. The latter studies should give a better presentation of the most important indicators which should be achieved, such as labor productivity, effectiveness of expenditures, etc.

CSO: 2102/3

REPORT ON DEVELOPMENT OF NEW INSTRUMENTS, TECHNOLOGIES

Sofia SPISANIE NA BULGARSKATA AKADEMIYA NA NAUKITE in Bulgarian
No 2 81 pp 75-80

[Text] Method for Stabilizing Unprocessed and Purified Alkaline Protease

At the Institute for Organic Chemistry in collaboration with the Center for Phytochemistry at the Bulgarian Academy of Sciences, invention #41701 has been designed by a group of inventors headed by P. T. Nedkov, senior scientific coworker, with the participation of co-inventors from the Economic Chemical Factory in Botevgrad. The invention relates to a method for stabilizing unprocessed purified solutions of alkaline protease, an enzyme widely used in flavor preservation, textiles and other industries. With the application of this method the compound does not have to be dried, and this reduces the inconvenience of current methods; the danger of protease is reduced when it is used in the textile, leather, cheese and other industries as well as popular chemistry because the new compound is not dusty and is not inhaled by workers; working with alkaline protease is easier: instead of having to weigh out the powdered alkaline protease and dissolving it (the unprocessed preparation is difficult to dissolve), the necessary amount of enzyme can simply be poured out. During stabilization of protease according to the invention it is unnecessary to dry the enzyme solution, and stabilized alkaline protease retains a higher degree of activity at room temperature and at elevated temperature (45°C) than if only sugar or only glycerin is used. The end product obtained by the method cost less than half the comparable price.

The invention is used in the production of alkaline protease, for its stabilization in solutions and preservation of these solutions for long periods at normal temperature (at 22°C for 1-2 years).

Method for Producing Perylene Biopreparations

The method represents invention #43973 of Institute for Organic Chemistry and the Center of Phytochemistry at the Bulgarian Academy of Sciences. The inventor's group was headed by P. T. Nedkov, senior scientific coworker, with the participation of co-inventors from the Ministry of the Chemical Industry. The invention relates to a method for producing powdered perylene biopreparations by direct mixing of bacterial alkaline protease, stabilized in

solution, with detergents. Advantages of the method: loss of activity is greatly reduced when the enzyme comes into contact with the detergents; the loss of enzyme activity in one month's storage of perylene compound prepared according to the invention is 1/4 of that of the compound prepared from powdered enzyme, and is equal to that of capsular enzyme. The additive which is added to alkaline protease stabilized in solution within the limits of the invention has another positive effect in addition to stabilizing the enzyme. At room temperature for 10-15 days it esterifies the low fatty acids present in the enzyme solution and thereby improves the handling and application of perylene enzyme preparations.

This invention is used in the production of powdered perylene biopreparations. It has been put into serial operation at the Economics Factory for General Chemistry "Veria" (Ratnopol) and can set up at other enterprises involved in the manufacture of dry perylene preparations.

Agent for Diluting Ovine Seminal Fluid "Zlatno Runo"

The development of the Institute for Biology and Immunology of Replication and Development of Organisms at the Bulgarian Academy of Sciences is protected by patent No. 25829/1979, St. T. Zlatarev, scientific coworker, is the inventor of name.

The agent for diluting ovine seminal fluid hitherto used in our practice (glucose-phosphate diluent) maintains the biological properties of sperm for about 2-3 hours at 18-20°C. This extremely short storage life does not provide ample opportunity for efficient use of this genetically most valuable breeding tool.

The agent proposed in the invention is comprised of citrate buffers and contains substances which induce temporary inhibition of the metabolic process in sperm by altering pH and storage temperature. These altered properties make it possible to retain the full-valued biological qualities of ram sperm for 24 hours, which is the great advantage of "Zlatno Runo" diluent. Application of "Zlatno Runo" diluent makes possible to establish new arrangements for artificial insemination of ewes in which the amount of impregnating agent used is reduced by 50%; the genetically most valuable impregnating agent can be used; savings of the agent are realized; improvement of ovine herd stock is accelerated.

The invention is used in animal husbandry and sheep breeding. The agent is manufactured by the Pharmakhim State Economic Association. The Scientific-Industrial Association for Cattle and Sheep Breeding has prepared instructions for its use, as well as research protocols for organizing artificial insemination of ewes using transported and stored seminal fluid.

The development has been introduced in the Razgrad, Khaskov, Pernisha, and Vrachan okrugs. Its introduction throughout the country is planned when conditions are right for its use. Introduction of new "Zlatno Runo" diluent in practice yields great savings: calculated on the basis of 20,000 ewes, savings for the first year are 160,000 levs. With expanded introduction, the effect will be greatly multiplied.

Automation of Technological Process in Potable Water Purification Station

In the development of this scientific-research task at the Institute for Water Problems patent #38517 "Control device for self-acting gravity-fed high-speed filters" and patent #43180 "Regulator for self-acting high-speed gravity-fed filters" have been created by the inventor group: prof. P. Ignatov, N. Koev, senior research coworker and R. Ognyanova, scientific coworker.

The control devices operates on the ejector principle and is simple in design, small in volume and failure-free in operation. It can be constructed without mechanical transmissions or support connections, and uses materials with negligible ageing.

The regulator operates according to Archimedean and Pascalian principles; it is distinguished by its simple technological design and failure-free operations and requires no field connections.

The invention is used in water management (in the Committee for Architecture and Public Welfare system), Economic board of directors of "Vodostabdyavane", "Vodokanalproyekt", etc), and other fields of hydraulic technology. Laboratory models, pilot plant tests and introductory plans have been sent to the "Igralishte" and "Borovets" purification plants. Industrial production has been arranged with disclosure of a multiplication effect.

Pulsed Galvanostatic Complex Type G 105

A team from the scientific working group at the Institute for Physical Chemistry headed by engineer M. Athanov, scientific coworker, has developed a pulsed galvanostatic complex G 105 for performing steady-state and pulsed galvanostatic measurements in electrolytic solutions. The design of the complex of the device G 105 permits it to be used for electrochemical and corrosion studies; the method of steady-state polarization curves, the method of current switching (basic galvanostatic method or method of cascade-type current change), the method of current cut off (voltage reduction), the dual pulse galvanostatic method, the method of current polarity alternation, cyclic galvanic method as well as thechromopotentiometric method. It will be possible to preselect an arbitrary sequence of polarization conditions (8-position program) which can be automatically reiterated many times. It will also be possible to provide semi-automatic compensation for resistive voltage loss in electrolytes.

The pulsed galvanostatic complex G 105 is noted for its very high speed and accuracy. With the aid of the complex all kinds of jobs can be tackled: the study of the mechanics and kinetics of slow and fast (with velocity constants up to 100 m/s) electrode reactions and corrosion processes, the investigation of the double layer structure and adsorption, the development of conditions for electrocrystallization and electrorefining of metals, etc.

The G105 complex can be used to tackle various problems in analytical chemistry.

The equipment consists of the following: high-speed galvanostatic G 105 G with automatic voltage range selection; G 105 P programmable device; G 105 B dual pulse generator with galvanostatic output; G 105 A recording adapter;

G 105 Ya electrochemical cell.

Technical specifications: polarization current $+1 \text{ nA}-1 \text{ A}$; maximum polarization voltage $+150 \text{ V}/15 \text{ V}$ at 1 A ; program steps ~ 8 ; duration of steps: 1 microsec to 10^4 sec ; rise time $0.1-1 \text{ microsec}$; accuracy: amplitude 0.1% and time 0.1% ; residual current up to 1 nA and operating conditions: single + cyclical.

Pulma 80 Automated Microprocessor System

The development is the property of the Central Laboratory for Biophysics at the Bulgarian Academy of Sciences headed by G. Georgiev, senior scientific coworker, and is for studying human respiratory functions. Pulma-80 performs up-to-date studies, using standard methods, both under conditions of mass screening of respiratory functions; under clinical conditions it reveals the earliest preclinical and presymptomatic disorders of respiratory function, as well as incipient changes with a view toward the prevention, outpatient treatment and management of functional disorders of the respiratory system.

Pulma-80 is a fully automated open pneumo-tachometric system which uses the latest advances in microcomputer technology and specialized programming. It is a miniaturized portable system whose size and weight are comparable to a portable typewriter. Its indicators of ventilation make it convenient both for various purposes of prevention (various screening and epidemiological surveys) and for routine examinations of respiration under clinical conditions. Some of the indicators are being utilized for the very first time in world practice. In terms of the number of parameters it measures, reproducibility, software and hardware, the Pulma-80 automated system is ranked at the average world level and in terms of technical and economic indicators, it rivals similar equipment manufactured by Western companies. This is the first development of its type in our country and in the universal computer system.

The system's programming support and operating routines are written to ensure optimum research effectiveness and man-machine interaction. The system's ergonomically planned operating routine maximally facilitates the operator's job and permits iterative man-machine addressing. When using this approach to organize systems functions, the operator's activities and technical sequence are governed by the program and the possibility of error is significantly diminished.

Pulma-80 system monitors 18 variables of the volumetric flow rate in ventilation. To determine the preset levels of the studied indicators, and to compute their percentage deviation from normal for each test subject, the program contains common and the most widely used formulas for defining normal values of anthropometric characteristics.

Pulma-80 affords the examiner the maximum operating convenience and high precision in determining test variables. The basic advantages of the system include: rapid, failure-free operation, simple maintenance; automatic selection of optimum results; direct data display; mini-printout from display of abnormal deviation of test indicators; automatic zero correction; automatic correction of test indicator values in terms of physiological standard; mnemonic display of maintenance instructions and messages, etc.

Introduction of the development into the health care system will result in both social and health effects, providing an opportunity to carry out screenings of respiratory functions of specific insured population groups and use in routine clinical diagnostics of functional respiration.

Spektroskan 180 A High Speed Scanning Spectrophotometer

The Spektroskan 180 A high speed scanning spectrophotometer was developed by the Scientific-Industrial Laboratory of High Speed Spectrophotometry and Biophysics (NPLSSBF) at the Bulgarian Academy of Sciences, headed by Yu. Vasileva, senior scientific coworker. It is a mass-produced instrument of the family of high speed scanning spectrophotometers with analog recording of spectrophotometric data, and is used to study the absorption spectra and their dynamics in high speed processes.

Spektroskan 180 A makes it possible to conduct scientific research of processes in the near UV and visible light at 230-800 nm. Resolution of the device is 1 nm or 2 nm according to the diffraction grating employed (1200 or 300 lines per millimeter). Dead time of the current device is less than or equal to 2 milliseconds. Spectral data are converted by a disector type photoconverter. Data are displayed and recorded on a C 8-13 memory oscillograph.

Spektroskan 180 A contains two patented devices, #23460 and #24180.

This scientific and technical advancement has been introduced at the NPLSSBF at Bulgarian Academy of Sciences.

Spektroskan 180 E High Speed Scanning Emission Spectrophotometer

The high speed scanning spectrophotometer, Spektroskan 180 E, is a product of the Industrial-Scientific Laboratory of High-Speed Spectrophotometry and Biophysics (NPLSSBF) at the Bulgarian Academy of Sciences, headed by Yu. Vasileva, senior scientific coworker. It is an optical spectral device for studying the technical emission spectra of processes in the visible and near UV regions 230-800 nm. The device provides resolution of 1 nm with diffraction grating having 1200 lines/millimeter and 2 nm with a diffraction grating of 300 lines/millimeter. Photometric precision is 2 percent. Spectral information is converted from the optical spectrum to its electrical equivalent using a disector type photoconverter. Scanning is sequential periodic. Maximum scanning rate is 7.5×10^6 nm/second.

The scientific and technical advancement Spektroskan 180 E has been introduced at the NPLSSBF at the Bulgarian Academy of Sciences and the Academy of Sciences of East Germany.

8617

CSO: 2202/4

'NETWORK I' INTRODUCED IN CEMA COMPUTER SYSTEM

Sofia TEKHNIЧЕСКО ДЕЛО in Bulgarian 3 Oct 81 p 2

[Article by Y. Aleksiyeva, engineer]

[Text] Bulgarian participation in Hall Number 8 of the fall trade fair in Plovdiv, dedicated to automation of institutional activities, was impressive. Many exhibits were being shown for the very first time and the attention they attracted was fully merited. The "Network I" system is a typical example. It was developed by the experts at the Institute for Computer Technology (IIT). The programming support was developed at the same institute, in the "Multicomputer networks and systems" section headed by Emil Dimitrov, engineer. It is the first development intended for the CEMA computer system.

"Network I" is a multimachine complex of computer hardware and programming support. It connects the country's existing territorial computing centers, thus producing a unified computer network. In that way a very wide range of scientific and technical, economic, informatics and other problems can be tackled. This first version the system consists of three SM 4 minicomputers. A YeS 1022 central processor is connected to each one. The three SM 4 machines are interconnected via dedicated telephone lines. The transmission of data, instructions and programs is synchronous full duplex. This is accomplished using SM 8507 synchronous modems with rates of up to 9600 baud. The YeS 1022 and SM 4 are locally connected via the IZOT 4500 S system interface. The standard configuration of YES computers permits inclusion of ESTEL system hardware.

Specialists who became interested in the new "Network I" system, be they from enterprises, plants, institutes, ministries, keep asking questions about the major technical specifications. Here are some of the answers: maximum number of terminals which can be connected to the YeS 1022 is 64; maximum number of terminals connected to one SM 4 minicomputer junction is 16; data exchange rate between junctions and YeS 1022 is 300 Kbaud; rate of transmission between one terminal and YeS 1022 computer is 2400 baud.

During the trade fair three SM 4 computers were powered up: one destined for IIT/Sofia, a second in Hall 16 "System '81" and a third one, of course, in Hall 8. The information that could be obtained at a moment's notice by the specialists was related to the latest developments of the institute represented at the exhibition.

This is not the "Network I" system's first success . It was earlier demonstrated at the XII Party Congress. There not only specialists but other interested parties were able to obtain information on the status of industry in the Sofia, Plovdiv and Vrachan okrugs. Information which would have taken days to exchange if it were carried by the postal service.

8617

CSO: 2202/3

PRODUCTION CAPACITY OF COMPUTER INDUSTRY OUTLINED

Sofia TEKHNICHESKO DELO In Bulgarian 3 Oct 81 p 13

[Article: "The IZOT State Economic Association"]

[Text] The production of computer and management technology in Bulgaria is handled at 14 large plants and 4 scientific organizations belonging to the State Economic Association "IZOT" and another 120 plants from other sub-sectors of mechanical engineering, on the basis of high specialization and cooperation of industry.

The product list of the "IZOT" association includes peripheral magnetic disk and tape memories; digital electronic computers to meet domestic and export requirements; analog electronic computers; systems for processing economic data and production management data for both the domestic market and for export; electronic cash registers for business etc.

The development of computer technology in the "IZOT" association is based on thorough scientific research and design and planning work. The main effort is focused on three areas.

First and foremost is the development and improvement of medium-size problem-oriented complexes. The hardware of this complex is designed to use matrix processors and hierarchical memory structures including high-speed ROMs and RAMS which can be interfaced with peripheral magnetic disk, magnetic tape memories, and data bases. This will involve a rapid acceleration in remote processing and reinforcement of system network architecture, and improvement of the variety of modular terminals.

The second focus is related to the creation of new large-capacity magnetic disk peripheral memories, magnetic tape memories with phase modulation, automatic tape sequencing and block encoding of data.

Special attention is also being given to floppy disk and diskette memories to be used as basic components of microcomputer systems.

The third focus is the continuing development of problem-oriented mini- and microcomputers systems. Microcomputer base modules are designed and constructed from microprocessor complexes. Using different combinations of standard base modules, a wide variety of computer capacities and specifications can be configured to the specific requirements of the user. Outfitted with the proper hardware for planning and development of programming

support, microcomputer systems will become an all-purpose means for automation and intellectualization of material production.

The ever widening use of microprocessors is leading to the creation of hardware noted for its high reliability, miniaturization, all-purpose functional resources and high efficiency. This is a requirement for solving the problems of total automation and electronization of the national economy by means of the widespread adoption of computer technology in various fields of life. The certain successes of the 7th Five Year Plan are a prerequisite for achieving even greater results in production and foreign trade activity in the 8th Five Year Plan.

8617

CSO: 2202/3

BRIEFS

COMPUTERIZED FODDER RATIONING SUCCESSFUL—During the past 3 months, technicians have been experimenting with a computerized livestock feeding system at the Sumava state farm's dairy in Chvalsina. A collar containing a microprocessor is attached to a cow's neck, signaling at specific times a grain fodder rationing machine to issue a grain fodder ration previously determined by an individual cow's milk yield. A miniprocessor simultaneously records each issued ration. The system enables zoo technicians to evaluate each cow's grain fodder consumption, health condition and milk yield on a daily basis. So far 30 dairy cows have participated in this program, but all of the dairy's 300 cows will be involved by spring of 1982. The system reportedly saves up to 14 percent of grain fodder consumption and increases milk yield 15-20 percent. [Pravda ZEMEDELSKE NOVINY in Czech 4 Dec 81 p 1]

CSO: 2402/11

BULGARIAN COMPUTER EQUIPMENT FOUND RELIABLE

Budapest SZAMITASTECHNIKA in Hungarian Jul-Aug 81 p 21

[Text] Bulgaria is a well-known shipper of computer equipment to the Hungarian market. It delivers complete computer systems, a variety of peripherals, as well as data preparing equipment. To date, 14 ES 1020 B and ES 1022 B computer systems operate in Hungary in Budapest, Miskolc, Szeged, Gyor, Debrecen and Pecs. The Building Management and Organizing Institute [EGSZI] bought nine of the systems. Hungarian users operate the machines in three shifts. Experience has proved the Bulgarian machines to be reliable. This is due to the good quality of the products themselves, the high quality of service provided by the Izotimpex Foreign Trade Enterprise, the supply of components maintained in Hungary, and the competence of Hungarian users.

The ES 1035, the first Bulgarian computer belonging to the second ES series was recently put into operation at the Computer Technology Research Institute [SZAMKI]. The system has a very high rate of performance. It is equipped with 100 M-byte disc packs, semiconductor operative store, magnetic tape units, a new type of operating console and a virtual operating system.

To round out computer systems made in Hungary, a total of 400 SM-5400 minidisc units, as well as SM-5302, SM-5303 minitape units will be delivered. At present a large number of ES 9002-type magnetic tape data preparing devices are operating in Hungary. For the coming year-and-a-half, Izotimpex has offered Hungarian consumers numerous new products. These include the ES 1035 B computer equipped with ES 2335 matrix processor and modern terminals, as well as the ESTEL-4 transfer system; the SM-4 computer with high capacity peripherals which include a 29 M-byte magnetic disc unit; the INFOREG special purpose system.

Since many users of minicomputer systems lack knowledge of computers and programming, Bulgaria devised the INFOREG special purpose system [POK] for use with the SM-4. It is designed to manage a variety data generated in bookkeeping, libraries, hotels, schools, inventories, export-imports, administrative procedures, etc.

CSO: 2502/29

HUNGARY READY TO MAKE TELETEXING EQUIPMENT

Budapest MAGYARORSZAG in Hungarian 8 Nov 81 p 32

[Report by Miklos Palos: "Teletext Starts Operation in July--Interest, Cost, Production Cost"]

[Excerpts] It has a Hungarian name already: tube news. Its foreign variations (teletext, videotext, caefex) were often used, and there were few people who believed that its translation into Hungarian would be so successful. It was presented in its experimental form to the Hungarian public at the most recent Budapest International Fair, showing its technical and essential possibilities.

In Hungary, the team at the Communications and Electrotechnical Institute of the Technical University worked for 3 years on the domestic model of the teletext. According to professor Pal Ferenczy, who led the study, this required the solution of many problems. One of them was, for example, to somehow substitute the Hungarian alphabet's discritical marks with structures according to the English system. The Swedish alphabet proved to be the best solution.

Since then, the Orion made the first prototypes on the basis of the study's results, and is prepared for mass production. The Videoton is also working on the so-called decoder necessary for reception; this decoder, when built into the TV set, makes it possible to "read" the tube news. According to a statement of the Videoton's chief of main department, they are planning to manufacture an apparatus which includes the unit necessary for the reception of the teletext program. One of the reasons the manufacturers are compelled to make these is that soon only such color appliances will sell on the western markets.

Regarding prices, industrial specialists are cautious, for the prices are mainly set by the demand for sets suitable for reception of tube news. (The latter also depends, of course, on the prices.)

Three Tasks

In the information received so far, we find that the Videoton set the price of the Munkacsy color TV set's modification at 15,000 forints, but the modification of the newest color sets costs only 8,000 to 9,000 forints. For comparison: in those western countries where sets suitable for telex reception are mass produced in excess of 100,000 units, the price of these sets are 15 to 20 percent higher than that of the conventional sets.

One of the domestic owners of the tube news will be the Hungarian Postal Service since it created the conditions for this technical service. We learned from the information given by Ferenc Valter, deputy director-general, that this will be the case in other CEMA-countries as well. We Hungarians were given the task of making a proposal for the selection of the most suitable system. This will be selected from the French antiop, the German bildschirmtext and the English models that are familiar in Hungary. The system selected should be suitable for a unified and long-time reception, for the decoder built into the sets has a life span of several years; it would thus be bad if they would become unusable after a few years because of another transmission technology.

For the operation of the tube news, 3 problems must be solved: that of the transmission, the reception technology and, last but not least, that of editing. While the first two are important technical problems the most significant problem is still programming, which is, first of all, an organizational and political task.

The type of mass communication that is being born in Hungary is owned and operated by the MTI. Its creation, according to Laszlo Agoston, deputy chief editor, is a fundamental political task, for the point is that this information service influences not only the individual but also the social attitude and public opinion. Through the tube news, people can get important information, and fast.

The MTI, in cooperation with 70 foreign agencies, its own correspondents in 21 countries, and the entire system of the domestic news service, works as a real "news factory." However, with the introduction of the tube news, even the present speed must be surpassed to adequately satisfy the demand of TV watchers and TV readers interested in the latest news.

According to the MTI, the realization of minute-by-minute news is not simply a question of speed. If, for instance, they want to give the addresses of pharmacies open at night, then they also must take care of giving the changes right away. Another example: even if they give traffic news only hourly, then they must have information suitable for broadcast within an hour of, say, a road closed at 3 P.M. because of surface damage. These examples show that the new means of giving information requires new methods. What is important is not only speed and dependability but also being concise. (The maximum length of teletext news is 3 and a half lines.)

The Basic Principle Is Speed

The perspectives of the practical use of the tube news are almost unlimited. This is shown by experience abroad. A sample of its use in the FRG: information on foreign and domestic politics, economy and sports, official notices, information on foreign travel, and cooking recipes are all included in the news appearing on the tube. Information on the acquisition of basic materials and on legal and other questions is directed to specific groups. Anyone may ask for information on certain conference deadlines and on table reservations in restaurants.

The time is not far away when, even in Hungary, the tube news will replace the housewife's cookbook or the traveller's time-table. Broadcasting will begin in July; there will be, no doubt, many people who will go through the tube news on the basis of "I just sit and ask."

9414

CSO: 2502/17

ISOLATION OF THE AUJESZKY'S DISEASE VIRUS FROM SWINE SEMEN

Budapest MAGYAR ALLATORVOSOK LAPJA in Hungarian Vol 36 No 8, Aug 81 pp 512-514
manuscript received 27 Feb 81

[MEDVECZKY, Istvan, Dr, SZABO, Istvan, Dr; Veterinary Medical University, Department of Epizootiology and Agricultural Cooperative of Mezohegyes, Department of Animal Hygiene]

[Abstract] To demonstrate the role of swine semen in transmitting infection, the Aujeszky's disease virus was isolated from the semen of naturally infected boars. Obtained from a state farm where all animals had been vaccinated against the disease and where the clinical form of the disease has not been apparent for 1-1/2 years, 13 samples from 11 boars were examined. The virus was isolated from the semen of three of the boars 4-6 months after their last vaccination. This is the first successful "in vivo" isolation of Aujeszky's virus from swine semen. Isolation, identification, pathogenicity of the virus and the neutralization test are described. An effective method is described to greatly reduce the cytotoxic effect of the semen. A slight toxicity of the seminal fluid remained after the first passages which usually disappeared after the second or third passage. The isolated strains are apparently moderately virulent wild viruses. Isolation of the virus from semen also confirms that serologically sensitized animals can excrete Aujeszky's virus in their semen. All 10 references are Western

2473

CSO: 2502/18

PASSIVE IMMUNIZATION OF FOALS TO PREVENT THE RESPIRATORY DISEASE CAUSED BY EQUINE HERPESVIRUS TYPE 2 (EHV-2)

Budapest MAGYAR ALLATORVOSOK LAPJA in Hungarian Vol 36 No 8, Aug 81 pp 525-527
manuscript received 9 Apr 81

[BELAK, Sandor, Dr, PALFI, Vilmos, Dr. BARTHA, Laszlo, Dr, TUBOLY, Sandor, Dr;
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Health Institute, and Agricultural Cooperative of Babolna]

[Abstract] Evidence points to the involvement of EHV-2 in the pathogenesis of the enzootic respiratory disease of foals. HEV-2 (KT/5797) was isolated from the nasal secretion of diseased foals and was grown on sheep-embryonic kidney and calf testicle cell cultures, and the concentrated antigen was injected into adult horses to produce hyperimmune serum. The serum and the gamma globulin obtained from it were used to inject 10-day-old foals in two stocks where serious losses were caused by the disease in previous years. Of the foals, 16 received hyperimmune serum, 11 gamma globulin, and 9 were used as controls. During the first 6 weeks after immunization, the controls showed clinical signs of the disease, excreted virus in their nasal secretion, had specific virus neutralizing antibodies in their serum and one of them died. Most of the foals in the vaccinated group were free of symptoms or had only a slight fever. After 6 weeks, acute symptoms developed also in this group but the symptoms responded to brief antibiotic treatment. Serological tests showed that the passive immunity of vaccinated animals lasted 5-6 weeks. Subsequently, 15 foals received immunization twice, at 1-month intervals. These did not develop the disease. The experiments serve as indirect proof that the EHV-2 virus may play an initiating role in the respiratory disease of young foals and the disease can be prevented by passive immunization. References on request.

2473

CSO: 2502/18

EXPERIMENTAL STUDY OF THE ORGANOPHOSPHATE-ADSORBING EFFECT OF THE HAEMOCOL SYSTEM

Budapest HONVEDORVOS in Hungarian Vol 32 No 3-4, Jul-Dec 80 pp 245-249

[DAVID, Gabor, Dr, physician-lieutenant colonel, retired, candidate of medical sciences, SZKLENARIK, Gyorgy, Dr, physician-major, TAKATS, Gabor, Dr, scientific department head, HEGYI, Lajos, Dr, adjunct member]

[Abstract] Hemodialysis and hemadsorption are important in the current treatment of poisonings. A model experiment was set up with organophosphates to study the adsorbing capacity of the HAEMOCOL column. The technical details and clinical usage of the method are referred to in the bibliography. Dimethoate and Trichlorfon were used on a miniaturized "haemocol" column--prepared by the authors--to study their elimination from blood. Circulating blood volume, rate of flow, and mass of the column were proportional to that used in human blood perfusion. Propylene glycol was added to the poisons to make them well miscible with fresh blood. The final blood samples contained 125 mg/ml dimethoate and 133 mg/ml trichlorfon, respectively. The phosphoric acid esters were determined by thin layer chromatography. Both phosphoric acid esters were rapidly adsorbed from the blood by the coated, activated charcoal granules. The kinetics of the adsorption is discussed. Reference 13: 3 Hungarian, 1 Russian, 9 Western

2473

CSO: 2502/20

STUDY OF PESTICIDE RESIDUES PERSISTING IN THE FAT, MUSCLE AND LIVER TISSUE OF
CATTLE RAISED ON HOUSEHOLD PLOTS

Budapest MAGYAR ALLATORVOSOK in Hungarian Vol 36 No 9, Sep 81 pp 621-623
manuscript received 26 Feb 81

[SOMLYAY, Istvan, POSGAY, Judit, VARNAGY, Laszlo, Dr, SZIGETI, Tamas; University of Agrarian Sciences, Keszthely, Faculty of Agricultural Sciences, Institute of Plant Protection, and Veterinary Medical University, Department of Food Hygiene]

[Abstract] Export meat and large-scale animal farms have been under regular monitoring since the early 1970s. The current study involved animals raised on household plots and small farms. These represent a considerable fraction of the domestic meat supply. The samples were tested for their chlorinated hydrocarbon pesticide residues. Of the many pesticides tested, only DDT and its metabolites were present in higher than permitted levels in the fatty tissue samples (36.3-908.6 $\mu\text{g}/\text{kg}$ found; a few were above the 500 $\mu\text{g}/\text{kg}$ level permitted in Hungary). Residues of the HCH isomers were between 1.2-34.0 $\mu\text{g}/\text{kg}$, below the maximal allowable domestic and international levels. The elevated DDT values are attributed to the higher age of the animals on household plots which were still in a position to incorporate DDT before it was banned years ago. From a food hygienic aspect, the few objectionable samples are not considered to be hazardous. Reference 8: 7 Hungarian, 1 Western

2473

SCO: 2502/22

ACADEMY OF SCIENCES PERSONNEL, ACTIVITIES

Warsaw NAUKA POLSKA in Polish Mar-Apr, May-Jun 81

[No 3-4, Mar-Apr 81 pp 193-206]

[Excerpt]

I

From the Polish Scientific Activity

For the 100th anniversary of the Polish labor movement and the 15th anniversary of the Institute of Social Sciences of the Swietokrzyska Engineering College, the institute organized a symposium on the subject "The Working Class of the Kielce District." The symposium took place on 11 December 1980 in the town of Kielce.

The symposium program included reports on this region's workers' activities during the onset of the labor movement between the two world wars, under the Nazi occupation and in the postwar years. Reports were also presented on the activity of the Polish Socialist Party among the working class in the Kielce region during the years 1944-1948, on the revolutionary traditions of the working class in the Ostrowiec Swietokrzyski and also on the links between the industrialization and certain aspects of working class changes during the 6-year plan period of the Kielce voivodship.

Cooperation With the GDR in the Field of Higher Education

The Seventh Conference of the PSR-GDR Commission for cooperation in the field of higher education, linked with the conference of presidents of the cooperating universities of Poland and GDR, took place in Poznan 25 and 26 November 1980. Almost 30 presidents of both countries' universities participated.

Results of this educational cooperation have been positively evaluated. This cooperative program for the years 1981 to 1985 will be a step ahead in perfecting the quality and raising the efficiency of this cooperation.

The conference brought about an agreement on the cooperation between the PPR Ministries of Learning, Higher Education and Technique and the GDR Ministry of Higher and Professional Education. The agreement provides, among others, for cooperation in agriculture and alimentation, electronics and chemistry, as well as in other fields of exact and technical sciences. Furthermore, mutual work will be carried out in scientific research as well as in social and humanistic sciences.

The State and Perspectives of Investment Planning

An all-Polish symposium, organized by the Polish Economic Society (PES), in cooperation with the Szczecin PES Branch, took place 17 and 18 November 1980 in Szczecin.

Representatives of some 100 design offices from the whole country and all the economy branches took part in the debates. The aim of the symposium was the evaluation of the state of operation of units engaged in planning investments and in defining the direction and the form of their future activity.

The following reports were presented at the symposium: "Evaluation of the State and Possibilities of Planning in the Opinion of Economists" (Dr Eugeniusz Ostrowski), "Problems of Motivation and Interest of the Designer With Results of His Work" (MS engineer Wladyslaw Strusinski), "Determinants and Their Impact on the Designer as the Author of His Work" (MS Marian Domagalski), "The Economic Part of the Investment Project--Its Role and Significance Today and Tomorrow" (MS Joseph Pachnik), "Forms of Design Units Organization Against the Background of Conditions and Needs" (Dr Jerzy Walicki), "The Substance of Investment Project in the Light of Practice and Needs So Far" (MS engineer Zbigniew Dabrowski) and "Problems of Internal Economics and Evaluation of Design Office Work" (MS Elzbieta Makowiecka).

The discussion resulted in a decision accepted and presented to the Commission for the Problems of Economic Reform.

Policy and Management of the Economy

The Polish Society of Political Sciences organized in Radom from 27 and 29 November 1980, an all-Polish session on the subject "Policy and Management of the Economy." One hundred thirty scientists from all academic centers in the country took part in this session.

The program of the session included 17 reports discussed in 3 problem sections.

Professor Artur Bednar, president of the society, opened the meetings. Referring to the present political and economic situation in the country, he emphasized that this session was an attempt to find a reform of the present economic system. Next the president of the engineering college (WSI) in Radom, Professor Michal Hebda, presented an outline of instruction at the Radom College and the trends of scientific research conducted there.

The members of the Policy and Management of the Economy in a Microregion Section, chaired by Assistant Professor Dr Andrzej Piekara from WSI, discussed existing links between the performance of political and economic institutions on the local level and also problems connected with centralization and decentralization as well as self-government on the level of the commune and the individual.

In the Policy and Economy Management in a Workshop Section, chaired by Assistant Professor Dr Czeslaw Surownik from the Lodz University, the leading

discussion subjects concerned employment policy, the role of the trade union Solidarity and professional unions, self-government in work enterprises and also problems of culture and ethics as well as the problem of working class consciousness.

The Instructive and Educational Group of Political Sciences of the Ministry of Education, Higher and Technical Schools (MNSzWiT), under the chairmanship of Professor Artur Bodnar, discussed the preparation of a new subject to be introduced in the new school year at all schools of higher education; namely, the science of politics. This subject has been already discussed during recent years, drawing attention to the necessity of eliminating a multiplicity of trends.

It has been decided, among others, to start studies on the political system in Poland, taking into consideration the new political events. A resolution has been presented, concerning the reform of the political system of the Polish People's Republic. The Polish Society of Political Sciences announced the preparation of an extended report, which will include substantial propositions to improve the political system in Poland. This report will be presented to the central authorities of the party and the government.

Colloquium--Opole 80

The Colloquium--Opole 80, devoted to problems of comprehensive development of the Odra River and its basin, took place 21 October 1980. It was organized at the initiative of the Silesian Institute. Almost 40 scientists from research institutions of Szczecin, Wrocław, Katowice, Warsaw and Opole participated.

The introductory report of the institute director, Assistant Professor Dr Bolesław Reiner, was the basis of discussion; he presented problems of the socio-economic development of the Odra River basin, according to the program of the Silesian Institute's studies. In addition, eight reports were discussed in two sections: economic and social.

Problems of Map Production

On 28 and 29 November 1980, the Association of Polish Geodesists, the Geodesy Committee of the Polish Academy of Sciences and the Polish Geographic Society organized in Lublin a scientific and technical conference devoted to the improvement of map production. Nearly 100 persons, specialists in geodesy and cartography, photogrammetry and geography and also "informatics," from all scientific, university and technical college centers as well as geodesy and map-drawing units, participated in discussions.

Twenty-eight comprehensive scientific and technical reports and communiques, covering all problems, were presented, all linked with the performance of production processes, with the final result of maps and geodetic-cartographic documentations.

13th Symposium of Mathematical Physics

The 13th Symposium of Mathematical Physics took place from 9 to 12 December 1980, in Torun. It was organized by the Nicholas Kopernik University in Torun, in collaboration with the Physics Committee of the Polish Academy of Sciences and the Scientific Society in Torun and also the editorial committee of the "Reports of Mathematical Physics."

Participants in the symposium included nearly 40 scientists, representing domestic and foreign scientific centers, from Czechoslovakia, GDR, GFR, Switzerland, Italy and USSR. Twenty-six reports were presented, concerning the newest achievements in mathematical physics and in certain branches of mathematics with an application in physics.

French Scientific Instrumentation

On 22 and 23 October 1980, the Polish Academy of Sciences, the Ministry of Education, Higher and Technical Schools and the French Agency for Technical, Industrial and Economic Cooperation (ACTIM) organized in Warsaw a symposium on French instrumentation for scientific research. Specialists from Poland and France participated in the symposium.

The subjects of reports included the technology of developing microelectronic systems, using lasers in scientific research, the extremely high vacuum technique, etc.

There was also an exhibit of installations, produced in France by 15 manufacturers.

Microwave Technique

From 27 to 30 October 1980, the Polish Academy of Sciences, the Association of Polish Electrical Engineers and the Gdansk Polytechnical Institute organized in Gdansk an all-Polish Fifth Congress on Microwave Electronics of the Solid-State Body (MECS). Specialists from several domestic and foreign centers took part in this conference, including those from France, Great Britain, Japan, the United States, Italy and USSR.

In nearly 100 reports and communiques, the newest achievements, development and application trends of the microwave technique--i.e., the technique of very high radio frequency in contemporary telecommunication--were reviewed.

An exhibition of microwave installations and subassemblies, developed in domestic centers engaged in research in this field, was organized during the conference.

SPE-80 Symposium

On 23 November 1980, an all-Polish Symposium of Energy Conversion, SPE-80, took place in Lodz. The subject of this symposium was "Steam-Gas Power Plants With Coal Gasification." The symposium was organized by the Provincial Scientific-Technical Committee for Power Engineering of the Chief Technical Organization

(NOT) in Lodz and the Institute of Fluid-Flow Machines of the Engineering College of Lodz, in cooperation with the Presidium of the Committee of Thermodynamics and Combustion of the Polish Academy of Sciences. The task of the symposium was the discussion of domestic and foreign experiences so far, in order to map in detail the directions of technical and research activities, as well as assignments leading to further perfecting energy conversion in Poland. Nearly 200 specialists from all over the country participated in the conference.

Reports and communiques, presented in plenary and topical sessions as well as in visual exhibits, demonstrated that energy conversion by coal gasification and the use of gas-steam power plants will enable a considerable cost reduction of electric energy generation and at the same time will permit using low-calorie fuel, high-sulfur coal and even certain waste material without using costly refining equipment.

Discussions took place in two plenary sessions and in four topical groups. The need for better integration and accurate direction of scientific and technical work was emphasized, as it will contribute to the improvement of energy conversion processes.

Properties of Sinters and Pellets

On 4 December 1980, an international symposium took place at the Academy of Mining and Metallurgy in Krakow. It was devoted to physical and structural properties of sinters and pellets. Over 50 scientists from Poland, France, Sweden and USSR participated.

The symposium was organized for the 70th birthday and 45 years of work of Professor Eugeniusz Mazanek as a professional metallurgist and 30 years of his scientific work as an outstanding Polish specialist in the field of sintering and blast-furnace technology. Professor Eugeniusz Mazanek received the title of meritorious teacher of the Polish People's Republic.

Symposium of Sport Medicine

On 23 and 24 October 1980, a Symposium of Sport Medicine took place in Jelenia Gora and Karpacz. Representatives of leading centers of sport medicine of Poland, Czechoslovakia and GDR participated in this symposium.

Nineteen reports concerning medical aspects of endurance training were discussed. Reports by Professor Stanislaw Kozlowski, director of the Institute of Work Physiology of the Polish Academy of Sciences, and Jan Mulak, a well-known trainer and sport activist opened the discussions.

On the occasion of this symposium the Provincial Ambulatory of Sport Medicine in Jelenia Gora started its operation.

Convention of Cardiologists

On 16 and 17 November 1980, the 36th Scientific Convention of the Polish Cardiological Society took place in Katowice. Nearly 800 heart specialists from all parts of Poland, from Hungary, GDR and Czechoslovakia took part in the meetings.

Nearly 250 reports were presented, concerning, among others, problems of heart arrhythmia, echo-cardiography, experimental cardiology and new diagnostic and therapeutic methods in the field of cardiology. Scientific films were also shown.

An exhibition of medication and of the most modern medical equipment serving cardiology were presented. Nearly 40 domestic and foreign firms presented their products.

15th Conference of Dental Surgery Section

On 16 and 17 November 1980, the 15th Scientific Conference on Dental and Reconstructive Surgery Section of the Polish Surgeons' Society took place in Lodz. Several leading specialists from academic centers of Poland and from a dozen or so foreign scientific centers took part in the conference.

One of the more significant subjects discussed during the conference was immunological problems in plastic surgery, important in tissue grafting. Moreover, surgical methods--cranium-facial-torso--were discussed comprehensively. Among the new ways presented, attention was drawn to the problem in plastic surgery of applying microscopic technique in tissue transferring.

This conference had substantial importance in enriching medical knowledge, particularly in relation to the increasingly popular demand for this kind of therapy, due to a growing number of accidents, mechanical and thermal injuries as well as congenital defects. Representatives of the Warsaw scientific-research center showed, how to overcome obstacles impeding transplants of other persons' tissues or transmission and anastomosis of sinews, skin, nose, bones, cartilage and even nervous systems. Representatives of the Lodz center presented their rich experience in surgical treatment of congenital defects in small children.

Days of Dutch Technology

From 17 to 26 November 1980 a presentation of Dutch accomplishments in science, technology and economy took place in Warsaw. In this second Dutch show in Poland, representatives of more than 20 firms and research institutes presented to Polish specialists reports about agriculture and animal husbandry, horticulture, food industry, the building trades and telecommunications.

The Week of French Technology

From 24 to 30 November 1980, a Week of French Technology took place in Poland: namely, in Warsaw, Katowice and Gdansk. Experts from 30 French firms and industries specializing in various technologies presented more than 60 lectures, attended by nearly 4,000 Polish technicians and engineers.

The week was organized by the French Association of Mechanical Industry and Metal Processing (FIMTM) and by branches of the French Center of Scientific and Technical Documentation.

The formal inauguration of the week was attended by Pierre Aigrain, French secretary of state for scientific research, and Jacques Dupuy, French ambassador in Poland. The Polish Government was represented by Janusz Gorski, minister of education, higher and technical schools.

The week was sponsored by the French Center of Foreign Trade and the Polish Chamber of Foreign Trade (PIHZ). Its aim was the strengthening of contacts between Polish and French industrial and technical centers and of scientific and technical experience exchanges.

Exhibits of Scientific Publications

For the Days of the Soviet Book, traditionally held in Poland, exhibits of Soviet publications were organized in Warsaw and other cities.

On 10 November 1980 the exhibit of Soviet books opened in the House of Polish-Soviet Friendship in Warsaw. Nearly 900 titles of new books were shown, representing the following fields: sociopolitics, science and technology, belles-lettres, books for children and teenagers and books on sport. There also were numerous beautifully edited books of art: monographs, albums, art encyclopedias, richly illustrated works dealing with separate periods of cultural history, schools of art and authors. Much space at the exhibit was devoted to Russian and Soviet classics and also to world classics, including Polish ones.

The Center for the Propagation of Scientific Publications of the Polish Academy of Sciences, the State Educational Publishing House and Ossolineum--the Publishing House of the Polish Academy of Sciences--as well as the Soviet Publishing House Education organized, from 10 to 15 November 1980, at the Palace of Culture and Science in Warsaw, an exhibit of Soviet scientific books. More than 600 titles of the newest publications were presented, including "Biorhythms and Work," "Acoustic and Optical Methods of Information Processing," and "Power Engineering of Photosynthesis in Plant Cells."

From 8 to 13 December 1980, an exhibit of U.S. universities' publications was organized at the Katowice Branch of the Scientific Publications Department of the Polish Academy of Sciences. Nearly 600 books were presented in the fields of humanities and social sciences, including archeology, philosophy, religion, art, history, sociology, politics, law and literature, as well as the field of exact sciences, including mathematics, geography, architecture, biology and medicine.

An appropriate catalogue, published for this occasion, helped visitors in selecting books.

New Scientific Periodical

A new scientific-technical periodical "Materials' Engineering," devoted to the interdisciplinary theoretical and practical branch of knowledge, was launched by the Presidium of the Main Council of the Chief Technical Organization (NOT), on

the initiative of NOT and of domestic centers developing this branch of technology. Professor Tadeusz Lamber became the chief editor of this bimonthly publication.

According to the foreword from the editors, this periodical has to "fulfill an integrating function relative to separate materials' groups as well as branches of technology. It appears to be necessary in view of unfavorable reaction of divisions and barriers between trades in the solution of materials' problems.

"Materials' Engineering' intends to present results of applicable research concerning all kinds of materials, such as metallic, plastic and ceramic substances, as well as composites. It will be a multitrade periodical, serving vital interests of many aspects of the national economy. In the nature of its content and level of scientific description, this periodical will find readers among scientists, engineers and technicians who have to solve material and technological problems in design or production activity.

"The periodical also intends to inform about general world trends and achievements of this branch of knowledge.

"It also appears to be necessary to join a wider international forum than presently reached, with problems of materials' engineering, particularly within the realm of the Council for Mutual Economic Aid (RWPG)."

No 1 (September-October 1980) includes the following articles: Adam Gierek, Lech Bajka, Tadeusz Zajac--"Changes in Al-Si Alloys Caused by Their Intensive Mixing Within the Temperatures Liquidus-Solidus"; Stanislaw Mrowec--"Heat Resistance of Special Alloys on the Groundmass of Nickel"; Tadeusz Lamber, Jerzy Gierek, Eugeniusz Hadasik--"Analysis of Plastic Working Processes of Titanium Alloys on the Basis of Plastometric Research"; Andrzej Bylica--"Present State of Aviation Structural Materials"; Edmund Grochowski, Joanna Wozniczka--"Means of Obtaining and Methods of Increasing the Strength of Thin Metallic Wires"; Jan Cwajna, Marek Hetmanczyk, Adolf Maciejny, Jan Onderka--"Application of Methods of Quantitative Metallography for the Evaluation of Initial and Secondary Structure of High-Speed Steel." In addition, the publication includes information on conferences and consultations, on the activity of the Instructive and Educational Group of the Ministry of Education, Higher and Technical Schools-Materials' Engineering and announcements and instructions for the authors. Within the first pages of the periodical short resumes of articles are given in Polish, Russian and English.

The periodical's editorial office is located in Katowice, and the publisher--Publishing House of Technical Periodicals and Books SIGMA--NOT Enterprise--is in Warsaw.

From Scientific Publications

The work of a full member of the Polish Academy of Sciences, Wacław Gajewski, and Professor Piotr Weglenski--"Genetic Engineering"--appeared in the series "Problems of Contemporary Biology" (Warsaw, 1980, State Scientific Publishing House, PWN, 260 pages, 1 table).

The book deals with problems connected with "genetic engineering"; i.e., with conscious manipulation of genes, chromosomes or their fragments, in order to obtain planned changes in genetic properties of organisms. The following problems have been presented: transformation and transduction of animal and plant cells; recombination and cloning of DNA, directed mutogenesis and cellular engineering. The authors presented also examples of these problems' applications in the cultivation of wheat and other grains.

Stanislaw Leszczycki, a full member of the Polish Academy of Sciences, is the author of a work titled "Facing the Map of Poland. A Geographical Economic and Plastic Study." It appeared in a series "Forecasts, Perspectives" (Warsaw, 1980, Book and Knowledge, 508 pages, illustrated).

The author presented a many-sided characteristic of the spatial structure of Poland's management and of its geographical, historical, political and economic conditioning with special consideration to the country's development after the Second World War. These considerations pertain also to changes forecasted for the future to the year 2000.

[No 5-6, May-Jun 81 pp 183-193]

[Excerpt]

II

Agreements on Scientific Cooperation of the Polish Academy of Sciences (PAN)

On 28 October 1980 in West Berlin an "Agreement on Scientific Cooperation Between the Historical Commission in West Berlin and the History Institute of the Polish Academy of Sciences" was signed by Cz. Madajczyk, full member of the Polish Academy of Sciences and director of the History Institute PAN, and Professor Dr M. Biskup--for Poland--and Professor Dr O. Busch, chairman of the Historical Commission in West Berlin and Professor Dr K. Zernack--for West Berlin. The agreement concerns the promotion of historical studies and, in particular, archival research concerning Polish-German relations. It also specifies organizational and financial conditions of scientists' exchange. The agreement became effective immediately.

On 13 May 1980 in Warsaw, W. Markiewicz, full PAN member and secretary of the First Department of Social Sciences PAN and Professor F. Furet, president of the Ecole des Hautes Etudes en Sciences Sociales (EHESS) (School of Higher Studies in Social Sciences), signed a document extending the "Agreement Between the First Department PAN and EHESS for the years 1981 to 1983." The agreement provided, among others, for the organization in Warsaw of a colloquium on the subject "Transmission of Cultural Models," the initiation of cooperation in the field of contemporary history and inclusion in the exchange and cooperation programs of the following subjects: preserving patrimony; workers' culture in the 19th and 20th centuries; history of culture and cultural models in the preindustrial period; changeability and continuity in communal life; large and small domain; social and demographic history of the family. Cooperation in the fields of sociology, economy, archeology and material culture is also anticipated.

On 7 November 1980, in Warsaw, the full PAN member and president of PAN, Witold Nowacki, and Gunnar Hoppe, member of the Royal Swedish Academy of Sciences and its president, signed a "Protocol on Cooperation Between the Polish Academy of Sciences and the Royal Swedish Academy of Sciences" for 1 July 1980 to

30 June 1983. During the debates it was ascertained that the cooperation of both academies was particularly efficient in studies of the following subjects: electronic properties of metals; biologically active polysaccharides and glyconjugates; central nervous system; functional and classic analysis and algebra including the number's theory; energy and human habitat; physics and chemistry of condensed bodies. This cooperation contributed substantially to the realization of the Final Act of the Conference on Security and Cooperation in Europe.

During the debates it was agreed that PAN and the Royal Swedish Academy of Sciences will, from 1980 to 1983, include 23 subjects; concerned agencies will coordinate working plans in which the following problems will be defined: aim, forms of cooperation, commitments, responsibility and other conditions of cooperation.

Limits of bilateral clearings and financial and organizational conditions of cooperation have also been coordinated. In 1982, PAN will organize the third Polish-Swedish symposium on the subject of mechanics of micropolar centers. The Royal Swedish Academy of Sciences will organize in January 1981 a round-table discussion on the subject "Food Production--Maintenance--Health," with the participation of science academies and scientific institutions of the five Nordic countries and eight socialist countries of Central and Eastern Europe.

From 1978 to 1980, the cooperation between PAN and the Royal Swedish Academy of Sciences included 15 subjects. The Institute of Physical Chemistry PAN and the Physics Institute of the Goteborg Polytechnical Institute are conducting measurements of electric conductivity of silver iodide with high mobility of cations in a wide pressure and temperature range. Results have been presented in 1978 at the Conference of Solid Electrolytes in Scotland and in 1979 at the U.S. Conference of Highly Conductive Solid Salts. The Biochemistry and Biophysics Institute PAN cooperates on the subject of biologically active polysaccharides and glyconjugates. Results have been presented in two publications; two later ones, concerning polyprenol metabolism in tissues cultivated in vitro, and also the NMR analysis of polyprenoidal compounds obtained from new sources, are in preparation. The Institute of Experimental Immunology and Therapy PAN is conducting joint studies on the same subject. Among others, research was carried out on the antigens O Shigella flexneri and Shigella sonnei of phase 1, with the application of gaseous chromatography technique, mass spectrometry and magnetic nuclear resonance. Structures of O-specific oligosaccharidal units have been established for these two Shigella groups. Results were presented in two publications. The Center of Experimental and Clinical Medicine PAN, in conjunction with the Swedish partner, published in the "Acta Physiologiae Scandinavica" results from the field of respiration physiology. A work from the field of limestone metabolism regulation in glioma cells and of centric processing of respiratory information, transmitted by the vagus from the lungs, has been prepared for publication.

On the subject of functional and classic analysis and algebra with the theory of numbers, the members of the Mathematical Institute PAN have proved the nonexistence of weak-zero bases in the L^1 -space and developed a new method of calculating norms of operators 2--absolute summing--so a small number of vectors be taken into consideration. The Institute of Biocybernetics and Biomedical Engineering PAN carried out joint studies in the field of computer processing and biomedical

pattern recognition as well as biomedical languages programming for pattern information processing.

On 26 November 1980 in Helsinki, T. Orlowski, full PAN member and first deputy of the Scientific Secretary of PAN, and Professor K.O. Donner, president of the Academy of Finland, signed a "Protocol of Scientific Cooperation Between the Polish Academy of Sciences and the Academy of Finland for the Years 1981 to 1983." During the debates it was established that the cooperation of academies was successful, resulting in several important effects, and that it contributed substantially to the realization of the Final Act of the Conference on Security and Cooperation in Europe. Both delegations commented with satisfaction on the organization of the Polish-Finnish symposium on the subject of system analysis and its applications in industrial and economic problems, which took place in Poland in November 1980.

PAN and the Academy of Finland will cooperate in 23 subjects from 1981 to 1983. Both academies will select the persons charged with individual subjects and the interested groups will coordinate work plans, which will determine the following: the aims of cooperation, its forms, commitments, responsible parties and also cooperation conditions. Stipulations of personal exchanges, trip financing and organizational conditions of cooperation have also been established. The protocol is binding from 1 January 1981 to 31 December 1983.

During 1979 and 1980, PAN and the Academy of Finland have realized jointly 22 subjects. On the subject of environmental ecology, the Ecology Institute PAN in cooperation with the Finnish partners conducts explorations concerning the utilization of parasitoids and their role in the limitation of great numbers of field heteropters in agroecosystems. Studies are also done of the invertebrate fauna in natural and cultivated meadows and of energy and matter flow in mineral meadows and peatbogs. Results of joint studies of the Zoology Institute PAN with the Finnish partners on ants as an indicator of urbanization pressure have been presented in a joint publication, dealing with the genetic affinity of ants from the *Fornica* species. The Oceanology Institution PAN cooperated with scientific units of Finland within the framework of the international Baltic monitoring program and included the intercalibration of biological methods.

In the area of genetics, the Human Genetics Institute PAN published four works on the domain of lymphocytes I in reaction to graft rejection and of surface studies of lymphocytes and antigens I receptors, cultivated by genes of immunological response. In the area of clinical, physiological and basic neurological studies, the Center of Experimental and Clinical Medicine PAN in cooperation with the Finnish partners carried out studies of nervous system structures, taking into special consideration the conductive apparatus. Knowledge has been acquired in histochemical techniques of ultrastructural studies, permitting a differential evaluation of a series of neuromediator systems and ultrastructural studies of the hypothalamo-hypophyseal system. The Center of Experimental and Clinical Medicine PAN cooperates also on trends of mutagenic and carcinogenic mechanisms' action of industrial chemical substances. Results of studies on bonds of carbon tetrachloride with nucleonic acids of rat's liver and brain have been published. The Biocybernetics and Biomedical Engineering Institute PAN cooperates in medical bioengineering in the area of biomagnetic fields studies

with the application of superconductive detectors SQUID and of a reader for the blind, as well as with speech synthesis area related to this reader. Scientists of the Animal Genetics and Husbandry Institute PAN and Animal Physiology and Feeding Institute PAN familiarized themselves with research studies at the Finnish scientific centers and exchanged information on physiological and feeding stuffs (straw, silage) and improvement in the efficiency of animal and milk production.

The cooperation of the Institute of Low Temperatures and of Structural Studies PAN dealt predominantly with the application of the Josephson phenomena in the measurements' technique. The Physics Institute PAN cooperated in studying possibilities for using SXS and XPS for imitating the streaked structure of materials used in electronics. A publication on X-ray spectroscopy and photoelectron methods in studying transitional metals' alloys is being prepared. On the subject of geophysics, seismology and physics of the ionosphere, the Institute of Geophysics PAN in cooperation with its Finnish partners published, among others, a joint work by R. Tesseyre and R. Vesanen, "Symmetry and Asymmetry in Geodynamics"; a work by B. Gadomska, "Mechanisms of Earthquakes--a Survey of Methods," has been prepared for publication; a work by A. Kijko and S. Pirkonen, "Precision of Calculating Epicenters and Time in the Earthquakes' Focus in the Fennoscandia Region." Preliminary works are under way to carry out joint studies of deep structures, using methods of explosive seismology on a 300-kilometer profile in Central Finland. The Center of Cosmic Studies PAN in cooperation with the Oulu University carried out measurements of integrated electron concentration in the ionosphere.

In 1978 Polish sociologists, together with their Finnish partners, published a book in the domain of macrosocial analysis of social transformations in Poland and Finland--"styles of life." On the subject of labor laws, the Institute of the State and Law PAN concentrates on the following problems: deviation and studies connected with alcoholism, labor laws, international laws with particular regard to Finnish transit across Poland and legal aspects of international economic cooperation.

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On 5 December 1980 in Warsaw, Jerzy Kolodziejczyk, corresponding member and deputy scientific secretary of PAN, and Istvan Lang, corresponding member and deputy secretary general of the Hungarian Academy of Sciences (WAN), signed the "Protocol on Scientific Cooperation Between the Polish Academy of Sciences and the Hungarian Academy of Sciences for the Years 1981-1985." In the debates, an evaluation of results obtained during the 1976-1980 cooperation period was made, and it was ascertained that the realization of the problem-subject plan was impressive. With this evaluation, as well as requirements and possibilities of both academies, this cooperation was extended by applying principles of scientific cooperation in selected subjects, using optimal forms of cooperation, etc. During the period 1981-1985, PAN and WAN will work on 28 subjects, 10 in cooperation. Scientific centers of both academies will coordinate and sign work plans before 15 May 1981, defining aims, tasks and anticipated results, as well as possibilities of their application, duties, performers, time-limits, forms of work termination, forms of cooperation, etc. Independently from the established

subject matter, PAN and WAN will cooperate on problems pertaining to planning, utilizing results of scientific research, training and perfecting scientific personnel, financing, effectiveness of international scientific cooperation, legal and organizational problems, etc. Recognizing that experts' reports and forecasts allow efficient exploitation of accumulated knowledge, it was decided to undertake cooperation in this area in the form of experts' reports and forecasts' exchange, sharing or joining in their elaboration. During the years 1981-1985 there will be cooperation with patents and licenses. Possibilities and the need for cooperation in developing scientific instrumentation and automation of scientific research have been assured as well. Limits of bilateral clearings have been established, and financial as well as organizational cooperation conditions approved in the following fields: terms of creating joint study teams, of employing at regular posts and also undertaking works to simplify organizational functions connected with this cooperation.

During the years 1976-1980 PAN and WAN have worked out 17 problems within the framework of bilateral cooperation. This cooperation has various forms, among them joint studies, consultations, organization of bilateral conferences, seminars, etc. In the area of perfecting and developing legal systems in the Polish Peoples' Republic (PRL) and Hungarian Peoples' Republic (WRL), the Institute of State and Law of PAN conducts with its Hungarian partner regular exchanges of legislative and scientific information, publishes on the basis of reciprocity three to five scientific treatises in its own publications and organizes sessions; for example, in 1980 a session devoted to family law. The Mixed Historical Polish-Hungarian Commission is operating actively. In 1976 in Budapest this commission organized a Polish-Hungarian colloquium devoted to the history of Poland and Hungary against the background of the division of Europe into the Eastern and Western parts during the Middle Ages and during the modern times. In 1979 Polish historians participated in a conference organized in Hungary, "Antimilitarism in Poland and Hungary in the 16th Century," and Hungarian historians took part in the conference on "Socinianism in the European Culture in the 17th to 18th Centuries."

The Agrophysics Institution PAN participates in studies of water flow in the soil and of physiochemical phenomena connected with it. Four joint conferences on physical soil properties and agricultural materials have been organized. Moreover, a unique scientific equipment for the study of soil mechanics is being utilized.

The Physics Institute PAN and the Institute of Low Temperatures and Structural Studies PAN cooperate on problems of physical bases and new materials for electronics. Among others, kinetics of epitaxial GAAS layers, obtained from the fluid phase was studied, as well as crystallization microprocesses during electroepitaxy. Polish scientists presented part of the results from the Visegrad Symposium on Optical Crystals' Physics in 1980. The Polish Institute of Basic Problems of Technique PAN (IPPT) and the Laboratory of Acoustic Studies WAN developed and carried out an experimental verification of methods and systems of measurement, numeral processing, analysis and synthesis of acoustic signals with a particular regard to the speech signal for the acoustic diagnosis of biological (organ of speech) and technical (machines, technological processes) of sound sources and of bilateral communication "man-machine" in the natural

language, with the help of speech signal. In the theoretical bases of resistance and optimization of machine and building structures, IPPT PAN worked out, among others, a comparison of a theoretical solution of resistance and energy absorptiveness of compressed thin-wall elements with the results of static and dynamic pillar crushing. The Institute of Molecular Physics PAN, in cooperation with the Central Physics Institute WAN, obtained a particularly valuable result; i.e., they discovered and investigated the result of phase transition in the salt $\text{NMc}_4, 2 \text{ Me Py (TCNQ)}_2$, using electrical methods. A joint publication has been prepared as well: J. Galica, L. Nemes--"Study of Self-Extension of the Rotational Pressure Transition $11_{1,10} - 11_{1,11}$ in the H_2CCO Molecule."

The Institute of Geography and of Spatial Farm Implementation PAN cooperates with the Institute of Geography WAN in the field of farm implementation of rural areas as a multifunctional space and of changes occurring in these areas. Results of this collaboration were presented at the third seminar organized by the Hungarian partner in 1978, and by the Poles at the fourth seminar in 1980. Materials from these seminars have been published by both institutes. The institutes also carry out studies in agriculture typology. From 1979 to 1980, the Polish group prepared a synthesis "On the Applicability of Quantitative Methods in the Spatial Analysis of Agriculture." In the direct cooperation of both agencies the following organizations take part: Department 5 of Agriculture and Forestry Studies PAN, which cooperates with the Ministry of Agriculture and Food Supply of the Hungarian Peoples' Republic; United Institutions of Scientific Instrumentation Production PAN with the KUTESZ Industry; and the Center for the Propagation of Scientific Publications PAN with the Publication WAN Akademiai Kiado.

Social Politics and Socialist Democracy

On 20 and 21 January 1981, an all-Polish Conference on Social Politics and Socialist Democracy was organized in Warsaw by the Regional Committee of the National Unity Front (FJN), the Polish Economic Society and the College of Social Sciences (WSNS) of the Central Committee of the Polish United Workers Party (PZPR). The aim of this conference was a discussion of the basic trends of social policy under the new socioeconomic conditions and preparation of conclusions to be addressed to the Ninth Commission of the Extraordinary Convention of the Polish United Workers Party (PZPR).

Three reports have been presented: Sylwester Zawadzki, corresponding member of PAN--introductory report; Dr Przemyslaw Wojcik, assistant professor--"Foundations of Socialist Social Policy--Realities and Needs"; and Dr Leon Brodowski--"Regional Social Policy During the Period of Economic Unbalance." Social workers and politicians, scientific workers, theoreticians and practitioners, representing various academic centers and research institutes, representatives of Solidarity and of trade and autonomous unions, management members of economic institutions and administration organs and people of various outlooks on life participated in the discussions.

The conference was an occasion for the exchange of experiences and opinions, a valuable form of participation of people engaged in the formation of social politics in this nationwide debate before the Ninth Extraordinary Convention of PZPR. The keynote of almost all statements was the conclusion that attempts to disturb the links between social politics and the development of socialistic democracy always lead to tensions and crises with dangerous consequences.

International Ship Symposium

From 11 to 13 February 1981, an international symposium devoted to research and design problems of ship propellers was organized in Gdansk by the Ship Propellers' Works of the Institute of Flow Machines PAN, the Ship Institute of the Gdansk Polytechnical University and the Center of Ship Technology.

Representatives of 13 countries participated in the discussions--namely, Bulgaria, Holland, Japan, GDR, the United States and USSR, as well as 42 Polish specialists.

The symposium program included 18 reports, 5 presented by Polish specialists. The last day of the symposium was devoted to a visit of the Hydrodynamic Research Center in Gdansk-Oliwa.

The Gdansk symposium was preceded by a conference of the International Propeller Committee (IPC) in Sopot on 9 and 10 February 1981. Professor Henryk Jarzyna, manager of the Ship Propeller Works IMP PAN in Gdansk, is a member of IPC since 1975, representing the Center of Ship Technology. During the 3-year tenure (1978-1981), the IPC prepared a report on the state of knowledge in the field of ship propellers and formulated research tasks for the years to come.

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Problems of Agricultural Production

On 5 February 1981 the Section of Economics and Organization of Agricultural Production PAN organized in Warsaw the annual symposium, the subject of which was problems connected with agricultural production.

Two reports were presented at this meeting: "The Past and the Future of Specialization of Individual Farms in Poland," presented by Professor Z. Wojtaszek, and "Effects of Costs on the Course and Level of Agricultural Production in Poland," presented by MS L. Staszynski. Problems of the formation of agricultural autonomy and of securing means of production for agriculture were discussed. The need for a constant study of agricultural production unit costs was emphasized, as well as increasing the deliveries of means of production for agricultural production development particularly the chemical means, in the nearest future.

Attention was drawn to the fact that agriculture will be able to feed the state population in a stable and sound partnership only with the industry. An economic reform of industry and agriculture should ensure a long-lasting partnership of both these branches of economy.

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Biotechnology in Food Production

On 11 and 12 February 1981, the Institute of Agricultural Chemistry and Technology of the Agricultural Academy in Lublin and the Committee of Food Technology and Chemistry PAN organized in Lublin a scientific session on the

subject "Biotechnology in Food Production." Nearly 250 specialists from the agricultural academies, trade institutes and polytechnical institutes across Poland, who deal with food matters, participated in the discussions.

Over 200 reports and communications were presented and discussed in five problem sections: albumin biosynthesis, enzymes, microbiology, fermentation technique and dairy work. The communications concerned such problems as albumin biosynthesis on the basis of nonconventional coal and energy sources; optimization of production conditions of yeasts' biomass, bacteria and lower fungi; enzymes' biosynthesis; optimization of conditions in the use of enzymatic specimens in the food production; technology improvement in the production of beer; evaluation of milk and albumen specimens from milk; selected problems of fish and krill processing, a method of marking certain food components.

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From Scientific Publications

The Economic Society prepared a volume entitled "Problems of Planning and Socio-economic Policy" (Warsaw 1980, PWE, 584 pages). This work was intended to commemorate the scientific literary output of Kazimierz Secomski, full PAN member.

This volume represents a collection of studies prepared by Polish and Professor Kazimierz Secomski. It consists of four parts: 1. "Problems of Socioeconomic Development"; 2. "Planning and Economic Policy in Socialism"; 3. "Problems of Shaping the Socioeconomic Expanse"; 4. "Science and Scientists." An extensive bibliography of Professor Secomski's works concludes the volume.

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Information on the International Congress on Ecology

From 5 to 11 September 1982, the Third International Congress on Ecology (INTECOL 82) will take place in Poland under the auspices of the International Ecological Society (INTECOL), Ecology Section of the International Association of Biological Sciences (IUBS) and of PAN. The Ecology Committee PAN and the Ecology Institute PAN are the organizers of the congress, which will convene under the motto "Ecology as the Basis of Habitat Management for the Common Well-being."

The conference will have six plenary sections (A-F) connected with detailed subsections (A1-E6), all taking place at the same time. Moreover, the organization of several technical meetings and symposia is foreseen (G). Their structure is as follows:

--A. Processes integrating ecosystems and landscape: A1. energy flow as factor integrating the environment; A2. mechanisms of matter transfer, exchange and accumulation in environmental systems; A3. biocoenotic and populational interdependences between ecosystems; A4. ecology of contact, barrier and ecotone zones; A5. problems connected with studies of multisystem units; A6. methods of studying ecological superecosystematic structures (among others, modeling methods).

--B. Progress in knowledge on the interaction between organisms in ecological systems: B1. role of parasites in ecological systems; B2. ecology and ethology --a synthetic approach; B3. plant demography; B4. relations--beast of prey and victim; B5. strategy and tactics of species biology; B6. evolutionary ecology and genetics.

--C. Reconstruction and stabilization of environmental quality: C1. theory and practice of recultivation methods in application to water systems; C2. ecological problems of landscape reconstruction; C3. program of ecological control (monitoring), of environment quality and of its components; C4. protected environments and biosphere reservations; C5. ecological effects of species extinction; C6. strategy of ecological systems' stabilization.

--D. Ecological bases of biological production intensification: D1. effect of changes in the environment and productivity and stability management of agricultural and forestry configurations; D2. effect of pest control on the production and quality of the environment; D3. environmental effects of crop rotation, breeding animals selection and landscaping planning, ecological directives for agriculture and agricultural-forestry landscaping planning; D4. ecological significance of traditional versus progressive agriculture; D5. influence of agricultural activity on the energy flow and matter circulation in the temperate and tropical region configuration; D6. influence of aquacultures on the ecology of water configurations (sessions D1. to D5. also concern pastures).

--E. Technological influence of man on the environment: E1. transportation, circulation and accumulation of toxic substances and pollution in the environment; E2. effect of pollution on various ecosystems; structure and performance; E3. bioindication of pollution on the level of the organism and of ecosystem; E4. salination of soils and waters; E5. radioactive contamination of the environment; E6. processes and strategy of deformed ecosystems.

--F. Ecology place and role in regional planning and otherwise; utilization of ecological expert appraisals in resources management and in spatial planning.

--G. Symposia and working consultations: G1. statistical ecology; G2. physiological ecology (on the subject of transferring laboratory data to regional studies and vice versa); G3. ecology of built-up areas; G4. environmental training; G5. water ecology (on the subject of wet soils); G6. seed-eating birds; G7. special symposium on the subject of ecology of polar regions.

Each section will be organized by Polish and foreign conveners, appointed by the Committee of the Third Congress of Ecology (INTECOL). The Polish conveners are coordinators of programs in a given section. Plenary sessions will include two to three problem reports presented by invited speakers who will be selected by the conveners and a discussion connected with these problems. The principal forms of active participation in the congress will be 15-minute oral reports, selected by the subsection chairmen; presentation of materials in the form of posters and scientific films; and also participation in working groups and symposia. English will be the official congress language.

The registration fee has been established at \$100 for participants and \$60 for accompanying persons and for students (upon presentation of confirmation from the college). The equivalent in Polish currency will amount to 3,000 zlotys for members and 1,800 zlotys for students. Polish members will pay a reduced registration fee of 1,500 zlotys, since Poland is the organizer of this congress.

Tourist and scientific excursions are an integral part of the congress (payable separately). There will be one midcongress excursion, included in the registration fee.

The first notification about the congress with the card for preliminary application will be mailed during the first half of 1981.

All correspondence and questions about additional information should be addressed to the Secretary's Office of the Third Ecology Congress PAN, Dziekanow Lesny, 05-150 Lomianki; telex 817378 IE PAN PL.

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CRITICISM OF SCIENTIFIC FIELD CONTINUES

Warsaw TRYBUNA LUDU in Polish 8 Dec 81 p 3

[Article by Tomasz Miecik: "Science and Reform: What's Behind That Curtain?"]

[Text] The criticism of science is not diminishing. It is no longer a question of last year's complaints: that now there are no great scientific schools, that science, especially the social sciences have become courtly, that the leadership apparatus has been permitted to treat science in an instrumental fashion. The questions which are now being asked at various meetings and are being addressed to TRYBUNA LUDU are more severe: What do we need so many scientific employees for? Why so many institutes? What are they doing there?

A few numbers would seem useful to start with. Well, in our country we have 84 centers of the Polish Academy of Sciences employing about 13,000 employees. There are 1,318 centers under the ministries (or equivalent institutions) employing about 218,000 employees, and then 88 institutions of higher education (excluding the Catholic University of Lublin [KUL], two theological academies, and the schools subordinate to the Ministry of National Defense and the Ministry of Internal Affairs) employing about 130,000 people.

Out of this total employment we can sort out the scientific research personnel. There are about 65,000 such employees, 65 percent of whom are employed by the institutions of higher education, about 25 percent by the ministries' and sectors' scientific research facilities, about 1.5 percent by the ministries' and sectors' various development facilities, and about 6.5 percent by the centers of PAN, the Polish Academy of Sciences.

Here is the immediate conclusion from this minidocumentation: In Poland, compared to other countries, including the socialist countries, there is a relatively small base of research and development facilities in the economy, that is, a relatively small link where all research achievements are translated into the language of technology, a relatively small bridge which decides the quantity, sort, and rate of the research results which are passed on for practical use. But even the level of employment of the scientific research personnel there is absolutely disturbing.

This is an extremely important sign of the pathology in the structure of the scientific-technical base, but it is not the only one. Let us take a broader look.

It seems that to understand the current picture of our science and technology we have to recall earlier years. Polish science started after World War II with decimated was during the reconstruction period following the destruction of the war, in a period of unprecedented social changes, industrialization, and migration which committed tremendous resources of social energy and materials. Here, as Prof Jozef Smigielski correctly notes in NAUKA POLSKA, "The war, which in some countries was the most powerful stimulus for the development of science, in Poland was not only a factor which interfered with that development but was also a cause of its regression."

Under these conditions it became necessary to make up for shortages and lost ground and to construct from the bottom up a new organizational structure adapted to current and future needs. One can hardly be astonished that many omissions and errors were bound to occur in such an operation, which to a great extent took place through improvisation and spontaneity. Most of them can be ascribed to the extensive nature of the development of the sphere of science and technology.

The results of these errors are noticeable to the present day, because never in the past have they been corrected in any broad sense, and there were at least three chances to do it.

As everyone knows, the organizational model of the national economy first of all determines the condition and structure of the national scientific research and development base. Unfortunately, this model actually always favored extensive processes in research facilities.

It is true that we tried to find our own place in the international division of labor, to establish Polish specialties, but without any great success. In effect we took up the production of everything a little bit, and every area of manufacturing, every sector, had to have its own research facilities. Hence, they grew in number but not in quality. There was great dispersion.

Thus the organizational model of the economy deepened and expanded these unfavorable processes, instead of discouraging and correcting the extensive development of research facilities.

The strong facilities capable of effectively guiding technical and technological progress can provide for only a few or a dozen and some production sectors in a country the size of Poland. Instead of such concentration, we have for example in the vehicles industry the production of bicycles, motorbicycles, motorcycles, four types of automobiles, two types of delivery vans, trucks, two types of buses, two types of tractors, electric locomotives, railroad freight and passenger cars, agricultural air-

craft, parts for passenger aircraft, gliders, helicopters, passenger ships, passenger ferries, and so on, as Zbigniew Landau mentioned in "Economic History of the Polish People's Republic," published in KULTURA, in its 15 November issue this year.

Good international cooperation in this area could prove to be extremely helpful to our technical research facilities. In last year's resolution of the Polish Academy of Sciences, the institution responsible for the overall development of science in Poland, we read the following: "The current level of the socialized economy's employment of scientific personnel, which accounts for 5.7 percent of total employment, shows that further growth in the number of these employees can no longer be as intensive as the increase in the problems to be resolved." This statement was intended to help intensify cooperation with foreign countries as a means for expanding the capacity of the country's scientific base. As I recall, there has always been talk about the need to develop such cooperation, and the results of these efforts have been negligible.

One might fear that Poland could fail to be an attractive enough partner for such cooperation, given the tremendously dispersed research facilities, because everyone knows that in such international cooperation the countries with the clearest production specialization with science and technology focused around it are the most important. In what way could we fit into the principles of complementarity which are required in international cooperation, since we have such a large number of weak research establishments? I have in front of me a list of the centers in the Polish scientific-technical network. To read it is really shocking, because there are so many small centers which employ a dozen and some people but not a single scientific researcher.

In a country the size of Poland it is not possible to develop all the directions of research. That is obvious. The annual reports of PAN or a ministry clearly show how many new themes are being expanded through broad foreign cooperation. Somehow I never managed to find the figures about how many subjects our scholars could pass by and not take up because of effective international cooperation in science and technology.

During the past decade one more attempt was made to put the economy's scientific-technical facilities in order, to focus the potential on the most important research programs for the country and control them centrally. Unfortunately, we cannot say that this project was met with complete success either.

As the years went by, the number of priority research programs increased, and actually all research activity, important and completely worthless, began to fit into them. What is worse, even for the few absolutely most important research problems, called government problems, it was not possible to guarantee appropriate investments intended to facilitate the practical utilization of research results. Given the exceptionally extended research, the large number of centers involved in working on it, and the mess in coordination, any sort of control over the execu-

tion of the research became fiction. Many times attempts were made to put some discipline into these research efforts, and they all failed. Hence, this attempt to focus research potential failed to produce the expected results also.

In the resolutions of the Ninth Extraordinary Congress of the PZPR all these shortcomings of the scientific-technical facilities were examined, and a great deal of attention was devoted to linking science and technology to the economy, to bringing some order to international cooperation, and to focusing research efforts on a small number of research projects considered to be really the most important. The review of the scientific-technical facilities in the ministries is in progress. Many facilities have already been eliminated or combined into larger stronger organizations. The number of central research programs has also been reduced.

Will these measures bring adequate order to the matters of the scientific-technical facilities? Are they preparing this area to meet the economic reform? I am afraid that raising the curtain along with the start of the economic reform will reveal the scientific scene with a lot of defects. But its examiner will be very demanding. Life itself will monitor it. And then the answers to the questions posed at the beginning of this article will become apparent.

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6 Jan 1982